

sion, splenomegaly and anemia. The isolation of ova from the feces and rectal biopsy raises an interesting point. It means that the fluke which infected this patient some 20 years ago is still alive and laying eggs. While it has been reported that flukes may live and produce eggs in man for 26 years⁶ it is seldom that one has the opportunity to observe this phenomenon since the typical patient is never clearly separated from sources of further infection.

Charters, Jackson and Vivian¹ described the first proved case of *S. mansoni* infection in Western Australia as recently as 1969. Their patient was a young man of Polish extraction who travelled much the same route as our patient and he, too, eventually settled in a refugee camp near Arusha, Tanganyika in 1943. He emigrated to Australia in 1950 and 16 years after leaving Africa presented with anemia, malaise and weakness. Both this patient and our own were from Eastern Poland and were born in the late 1930's. After the Russian occupation of Eastern Poland in 1939 many Polish citizens were deported to Eastern Russia. They lived in detainee camps until 1942 at which time, as part of an Anglo-Soviet agreement, about 75,000 deported Poles left Russia for the Middle East. Many travelled via India and Iran and found their way to refugee camps in Rhodesia and East Africa. Our patient came to Canada from Arusha in 1951 and Charter's patient went to Perth, Australia in 1950. Part of the interest of this communication rests in the remarkable similarities between the socio-medico-political histories of these two men.

I wish to thank Dr. Bruce Barton for permission to publish this case, Mrs. Rose Porter who typed the manuscript and Dr. W. C. Watson for help and encouragement in its presentation. Dr. A. Enriquez kindly prepared the photomicrographs and the Department of Visual Aids of Victoria Hospital supplied Fig. 2.

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Blunt abdominal trauma

DR. SIMMONS: Mr. R., a 22-year-old man, was involved in a head-on car collision on New Year's Eve. Although he had been able to walk for almost a mile from the site of the accident, he was admitted to hospital, where he was watched until about noon on New Year's Day. From the time of admission his abdomen became increasingly more rigid; his vital signs remained quite stable and his blood pressure remained normal but his hematocrit fell from 40 to 36. He vomited coffee-brown material once so a naso-gastric tube was inserted. At this stage he was transferred to this hospital and when seen in Casualty at midnight the abdomen was rigid in all four quadrants and there was rebound tenderness. Brown material was draining from his naso-gastric tube. His pulse was 80 per minute, his blood pressure 120/80. X-rays taken earlier in the day showed no gross abnormality but repeat films taken at this hospital showed free air under the diaphragm on both sides.

DR. GODBOUT: On admission, an abdominal series (Figs. 1, 2, and 3) and antero-posterior and lateral views of the chest were taken (Figs. 4 and 5). The latter appear normal. The abdominal series demonstrates free intra-abdominal gas under the right hemidiaphragm. A few moderately dilated loops of distal small bowel are seen in the left lower quadrant and represent localized adynamic ileus.

A small and unusual collection of gas is seen in the right paravertebral area opposite the first two lumbar vertebrae. It is relatively fixed in

position as visualized on the different views and represents gas in the retroperitoneal space, probably secondary to a tear or perforation of the duodenal loop.

DR. SIMMONS: Because of these x-ray findings and the abdominal rigidity, he was taken to the operating room as soon as possible where laparotomy was performed through a midline incision. The liver, spleen and stomach were undamaged. The first and second portions of the duodenum appeared normal. On raising the transverse colon we immediately noted marked edema towards the base of the transverse mesocolon and over the pancreas. This led us to a perforation 1 cm. in diameter in the upper jejunum, about 3 cm. from the ligament of Treitz. Further exploration revealed a second perforation, about 8 cm. from the first, on the superior aspect of the fourth part of the duodenum. There was marked edema of all structures in the area. The rest of the small bowel and the large bowel were intact. The perforations were closed with a single layer of interrupted silk sutures and drainage was provided by the insertion of a Penrose drain through a stab wound in the left flank. Post-operatively he has done extremely well and there have been no complications in these first six days.

DR. WOOLHOUSE: Was he wearing a seat belt?

DR. SIMMONS: No, he wasn't. He was driving and was thrown against the steering wheel. The hollow viscus that is most commonly injured in blunt abdominal trauma is the small bowel, usually the duodenum. Injuries may also be caused in the upper jejunum and infrequently in the ileum. Most

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FIG. 1—Antero-posterior supine view of the abdomen—mild adynamic ileus and retroperitoneal air around the duodenum.

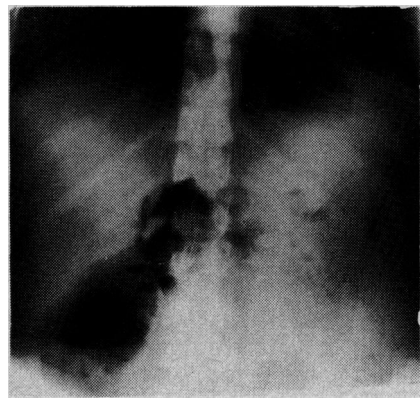


FIG. 2—Antero-posterior upright view of the abdomen—air-fluid level in duodenal cap.



FIG. 3—Left lateral decubitus view of the abdomen—slightly dilated duodenal loop with air fluid level.

of these cases are managed simply by debridement and oversewing of the perforation and drainage. Almost all cases receive pre- and post-operative antibiotic coverage. Such perforations are frequently associated with pancreatic injuries and these demand more radical surgery. There have been very few jejunal perforations in this hospital.

DR. DICKISON: In my opinion the best account of this subject is provided by a group from Los Angeles (*Am J Surg* 111: 341, 1966). They report 20 cases of rupture of the duodenum and classify them into two groups, according to whether or not there is apparent injury to the pancreas. In the absence of such injury, they agree that usually conservative oversewing of the rupture with provision of suitable drainage is adequate manage-

ment. But they stress that where there is major damage to the pancreas, radical treatment is called for. In their cases all the complications, including mortality, were attributable to failure in being radical. The plan they recommend is as follows: after recognizing that the pancreas has been grossly damaged or that the duodenum is beyond simple repair, a vagotomy and a Billroth II antrectomy are performed, along with duodenostomy and insertion of a sump drain. This more or less isolates the duodenum on the Roux principle. Of course, closure of the duodenum where possible and adequate local drainage and choledochostomy are added to the above procedures. They report excellent results from this major surgery and they have also used this technique in the complications, such as fistula formation, which develop following less radical procedures.

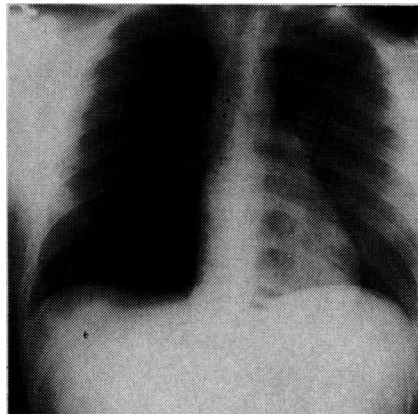


FIG. 4—Antero-posterior view of the chest—gas under right hemi-diaphragm.

DR. HRENO: Another surgical trick which I have found useful where the surgeon is not altogether satisfied with simple repair of the ruptured bowel, is the serosal patch technique. This is done simply by bringing up an adjacent loop of bowel and sewing it over the perforation whose repair is questionable.

DR. HINCHEY: Retroperitoneal rupture of the duodenum can, on occasion, be extremely difficult to diagnose. The patient need not have the acute abdomen as was presented by the case under study today. In these cases retroperitoneal emphysema can sometimes be identified in x-rays and subcutaneous emphysema may even declare itself in the groin.

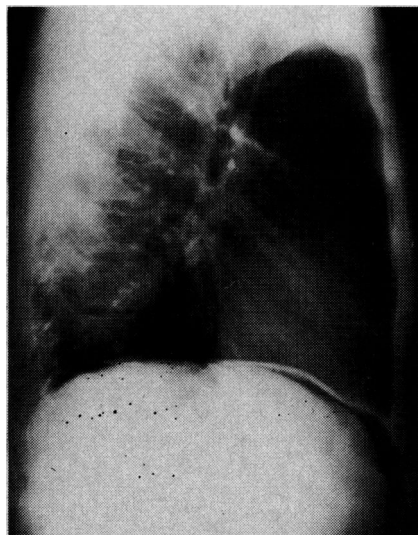


FIG. 5—Left lateral view of the chest—gas under diaphragm anteriorly.

DR. DICKISON: The idea of a Billroth II and sump-duodenostomy to bypass the duodenum impresses me as an excellent procedure and I feel I shall be better armed, when the next case presents itself, by my knowledge of the report mentioned above.